How Rock Deforms

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Folds

- Anatomy of a Fold
  - **Anatomy of a Fold**
    Features to identify folds. Limbs: sloping sides of folds
    Hinge: limbs meet at bend in layers
    Axial plane: if a plane could sli...
- Sizes of Folds
  - **Sizes of Folds**
    Some small enough to be hand held specimen. Some cover 1000s of kilometers. Large anticlines can form a ridge. Large syncline can form a valley.
- Types of Folds
  - **Types of Folds**
    Rock layers of fold identified by age from youngest to oldest. Anticline is fold which oldest layer in center of fold. Syncline is fold which youngest layer is ...
- Fold
  - **Fold**
    A form of ductile strain in which rock layers bend, usually as a result of compression.

Deformation

- **Deformation**
  The bending, tilting, and breaking of Earth's crust; the change in shape or volume of rock in response to stress

Isostasy

- **Isostasy**
  A condition of gravitational and buoyant equilibrium between Earth's lithosphere and asthenosphere.
- Deposition and Isostasy
  - **Deposition and Isostasy**
    Isostatic adjustment occurs when rivers carry large amounts of mud, sand, and gravel and deposit it in larger bodies of water. Mississippi depositing in...
- Glaciers and Isostasy
  - **Glaciers and Isostasy**
    Isostatic adjustment occurs from growth and retreat of glaciers. Weight of glacier causes lithosphere below ice to sink and the ocean to rise cause the wat...
- Mountains and Isostasy
  - **Mountains and Isostasy**
    Isostatic adjustments constantly occur. Erosion causes mountains to lose height and weight. Area may rise by isostatic adjustment, process called uplift.

Faults

- **Fault**
  A break in a body of rock along which one block slides relative to another; a form of brittle strain.
- Sizes of Faults
  - **Sizes of Faults**
    Some faults are small and some are large. The Andreas Fault in California is an example of a large fault system.
- Normal Faults
  - **Normal Faults**
    A normal fault is a fault in which the hanging wall moves downward relative to the footwall. Normal faults commonly form at divergent boundaries. The...
- Reverse Faults
  - **Reverse Faults**
    When compression causes the hanging wall to move upward relative to the footwall, a reverse fault forms. A thrust fault is a special type of reverse fault. ...
- Strike-Slip Faults
  - **Strike-Slip Faults**
    The rock on either side of the fault plane slides horizontally in the response of shear stress. Strike-slip faults get their name because they slide, or slip, parallel to t...

Strain

- Factors that Affect Stain
  - **Factors that Affect Stain**
    Composition of rock determines if brittle or ductile. Temperature and pressure affect how rock deforms. Low temp and pressure at Earth's surface causes rock ...
- Types of Permanent Strain
  - **Types of Permanent Strain**
    Materials that respond to stress by breaking or fracturing are brittle. Brittle strain is cracks or fractures. Ductile materials respond to stress by bending ...
- Strain
  - **Strain**
    Any change in a rock's shape or volume caused by stress.

Stress

- Compression
  - **Compression**
    Type of stress that squeezes and shortens a body. Reduces amount of space that rock occupies(volume). It also pushes rock higher or lower into crust...
- Tension
  - **Tension**
    The stress that stretches and pulls a body apart. Rocks pulled apart by tension become thinner. Much tension occurs at divergent boundaries where tectonic plat...
- Shear Stress
  - **Shear Stress**
    Distorts a body by pushing parts in opposite directions. Common at transform boundaries where tectonic plates slide past each other.
- Stress
  - **Stress**
    The amount of force per unit area that acts on a rock.

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